

**Notice of Allowability**

Application No.

09/882,614

Applicant(s)

RHEE, SEUNG HYEON

Examiner

Art Unit

Paulos M. Natnael

2614

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment received on 9/17/04 and phone interview of 12-28-04.
2. ☒ The allowed claim(s) is/are 1,6,21-23, and 25, renumbered as 1-6.
3. ☒ The drawings filed on 15 June 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |   |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)           |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|   | 9. <input type="checkbox"/> Other _____   |

## **DETAILED ACTION**

### **Examiner's Amendment**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.
2. Authorization for this examiner's amendment was given in a telephone interview with Lew Edward V. Macapagal (55,416) on December 28, 2004.

The application has been amended as follows:

Claim **24** has been canceled.

In claim 1, line 20, delete "unprocessed".

In claim 6, line 20, delete "unprocessed".

In claim 25, line 1, change "claim 24" to --claim 1--.

### ***Allowable Subject Matter***

3. Claims **1,6,21,2-23, and 25** are allowed.

The following is an examiner's statement of reasons for allowance: the prior art fails to disclose a scan conversion apparatus comprising, at least one field buffer; at least one field motion estimator receiving image input of interlaced scanning format from said at least one field buffer, said image input including a current field and at least one reference field; at least one field motion compensator operatively coupled between said

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at least one field buffer and said at least one field motion estimator, said at least one field motion compensator adapted to restore at least one missing line of said current field using motion information from an optimally spaced adjacent reference field when said optimally spaced adjacent reference field is unevenly matched to said current field; at least one linear interpolator adapted to restore at least one missing line of said current field when said optimally spaced adjacent reference field is evenly matched to said current field', and at least one edge-preserving filter operatively coupled between said at least one field motion compensator and said at least one linear interpolator, said at least one linear interpolator producing image output of progressive scanning format; at least one frame buffer adapted to store said produced image output and image input of progressive scanning format; and at least one frame motion estimator operatively coupled between said at least one frame buffer and said at least one field motion estimator and adapted to generate motion vectors between adjacent image frames, as in claim 1;

At least one field buffer; at least one field motion estimator receiving image input of interlaced scanning format from said at least one field buffer, said image input including a current field and at least one reference field; at least one field motion compensator operatively coupled between said at least one field buffer and said at least one field motion estimator, said at least one field motion compensator adapted to restore at least one missing line of said current field using motion information from an optimally spaced adjacent reference field when said optimally spaced adjacent reference field is unevenly matched to said current field; at least one linear interpolator

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adapted to restore at least one missing line of said current field when said optimally spaced adjacent reference field is evenly matched to said current field; at least one edge-preserving filter operatively coupled between said at least one field motion compensator and said at least one linear interpolator, said at least one linear interpolator producing image output of progressive scanning format, at least one frame buffer adapted to store said produced image output and unprocessed image input of progressive scanning format, at least one frame motion estimator operatively coupled between said at least one frame buffer and said at least one field motion estimator and adapted to generate motion vectors between adjacent image frames; and at least one frame motion compensator operatively coupled between said at least one frame buffer and said at least one frame motion estimator and adapted to control the size of said motion vectors, as in claim 6;

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

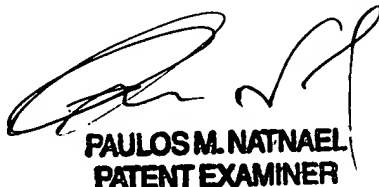
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paulos M. Natnael whose telephone number is (703) 305-0019. The examiner can normally be reached on 9:00am - 5:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Miller can be reached on (703) 305-4795. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PMN  
December 28, 2004



**PAULOS M. NATNAEL**  
**PATENT EXAMINER**